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ABSTRACT

In response to a need for quality resource materials for the Occupational Investigation component of Occupational Orientation, a project developed guides that addressed the needs of the four program components: self-appraisal, economic and societal factors, occupational clusters, and educational planning. A teacher's handbook was developed to coordinate student activities, as compiled in the guide, with course goals (see Note). A literature review surveyed topical areas related to design and course of the project--career education, occupational orientation, and developmental research and utilization. The Developmental Research Model was used to manage the project and examine specific development activities. The analysis phase consisted of problem analysis and information selection. Activities during the development phase--the major project focus--included gathering and assessing information (literature review, site visits, and meeting of guest writers and consultants), product innovation (writing outcomes), and project realization (prototype guides). During the evaluation phase the guides were field tested, efficiency and effectiveness of the activities evaluated, and each guide then revised. Instructors indicated preferences for illustrations, paper-and-pencil inventories, and practical "hands-on" activities. Field testing revealed a consistent need to adjust suggested time parameters for activities. The teacher's guide was reviewed by advisory committee members. (YLB)

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DEVELOPMENT OF OCCUPATIONAL INVESTIGATION RESOURCE MATERIALS

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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FINAL REPORT:

RESEARCH PROJECT IN OCCUPATIONAL EDUCATION

Division of Occupational Research and Development
Department of Occupational Education and Technology
Texas Education Agency

June 30, 1979

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CHAPTER I

INTRODUCTION

The present research project was based upon a need for quality Occupational Investigation resource material documented in the Request for Application (TEA, 1978). The purposes, limitations, objectives, and procedures of the project are briefly reviewed.

NEED FOR THE PROJECT

According to the Request for Application (TEA, 1978), the need for curricular materials for the Occupational Investigation phase of Occupational Orientation was labeled "high priority" by practicing Occupational Orientation teachers, by teacher educators in the field, and by the state director for Occupational Orientation. As identified in Section 130 of Public Law 94-482, the Vocational Act of 1976, the development of curricula to improve vocational instructional programs is a major function of vocational research. Therefore, the present project was proposed by the Occupational Curriculum Laboratory, East Texas State University, and funded by the Research Coordinating Unit, Department of Occupational Education and Technology, Texas Education Agency. The need for the project was also based upon the success and anticipated expansion of Occupational Orientation in Texas.

Occupational Orientation was initiated during 1970-71 as an exemplary activity in vocational education in Texas. From the original 10 pilot projects, the program expanded to 115 school districts by the 1977-78 school year. Presently, over 45,000 students are served by approximately 300 Occupational Orientation teachers. As a consequence of the success of the program in meeting the occupational decision-making needs of students, on April 10, 1976, the State Board of Education approved Occupational Orientation as a vocational instructional program. Based upon the past success and growth of the program, a 20 percent increase in program enrollment per year can be anticipated for the next five years. Thus, the need for instructional resource materials which promote the uniform attainment of program objectives was viewed as immediate and significant (TEA, 1978). The purpose of the project was determined directly from the needs of the program.

PURPOSES OF THE PROJECT

The major purpose of this project was to develop Occupational Investigation guides or collections of resource materials that addressed the needs of the four program components: Self-Appraisal, Economic and Societal Factors, Occupational Clusters, and Educational Planning. In addition, an Occupational Investigation Teacher's Handbook was developed to facilitate the coordination of student activities, as compiled in the guides, with the goals of the course. The objectives of the project were designed to pursue directly the aforementioned purposes.

OBJECTIVES OF THE PROJECT

The objectives of the project were written to insure that quality Occupational Investigation guides were produced during the contract period (June 1, 1978 - June 30, 1979) by means of a systematic developmental research effort. The objectives are listed.

1. Develop an Occupational Investigation Teacher's Handbook as described in the Request for Application (TEA, 1978) and the Application for Vocational Program Improvement and Supportive Services (Occupational Curriculum Laboratory, 1978).

2. Develop preliminary instructional materials in Occupational Investigation that contain teaching strategies and student activities in the following phases: Self-Appraisal, Economic and Societal Factors, Occupational CLusters, and Educational Planning.

3. Develop transparency masters that support the instructional materials in the curriculum package.

4. Distribute 500 copies of the guides and the handbook to the Research Coordinating Unit, Department of Occupational Education and Technology, Texas Education Agency for dissemination to Occupational Investigation teachers in Texas.

5. Distribute 200 copies of a comprehensive final report to the Research Coordinating Unit.

The objectives of the project were accomplished by means of an applied research approach, which was guided by a Developmental Research Model (Appendix A). Attainment of the objectives was subject to several limitations.

LIMITATIONS OF THE PROJECT

Several decisions affected the outcomes of the project. Although the objectives for the project were achieved, these decisions limit the interpretation of the results.

1. All of the activities included in the prototype guides were subjected to a field test, rather than a field review, by Occupational Investigation instructors (See Appendix B).

2. Instructors included in the field test were identified by the program director for Occupational Orientation as a cluster sample which represented Occupational Investigation instructors in Texas.

3. Each of the chapters of the Teacher's Handbook was reviewed by members of an advisory committee (See Appendix C).

4. Each of the Occupational Investigation guides were field tested and revised according to the following sequence: Self-Appraisal, Economic and Societal Factors, Occupational Clusters, and Educational Planning.

5. All materials were reviewed by selected special interest groups--including, National Organization of Women, Daughters of the American Revolution, American Association of University Women, and Delta Kappa Gamma--to insure that the curricula did not incorporate sex bias or stereotyping.

The limitations of the scope of the developmental research effort were appropriate, given the objectives and the methods and procedures of the project.

METHODS AND PROCEDURES

The research project was guided by a Developmental Research Model (Appendix A) which was based upon an approach to product innovation suggested by Thomas (1977). Several phases constituted the developmental research process in this project. The developmental phases and component operations are briefly described in Table 1.

TABLE 1

PHASES AND OPERATIONS OF DEVELOPMENTAL RESEARCH

Phase	Operation
I. Analysis	1. Problem Statement 2. Information Selection
II. Development	3. Information Gathering and Assessment* 4. Product Innovation* 5. Product Realization*
III. Evaluation	6. Trial Use 7. Data Collection 8. Product Evaluation
IV. Diffusion	9. Diffusion Media Preparation 10. Product Information Dissemination
V. Adoption	11. Product Implementation 12. Product Institutionalization

* Evaluation may lead to product revision, and thus, a recycling through one or more operations in the Development Phase.

The present project focused upon the first three phases (I-III) of developmental research. Some attention was given to the Diffusion Phase (IV) or the initial utilization of the product (see Thomas, 1977). However, the Adoption Phase (V) was beyond the scope of the project. The sequence of activities that was conducted to satisfy the objectives of the project were organized according to the phases of developmental research. The outcomes of the activities by phase and time period have been reported in Chapter 3: RESULTS. Therefore, the method used to complete the development of Occupational Investigation resource materials was the adoption and application of the Developmental Research Model. The procedures enlisted to satisfy the objectives may be considered outcomes of the application of the model.

SUMMARY

A general introduction which described the origination and scope of the project was presented. The need for the project was discussed; however, the Request for Application (TEA, 1978) rendered the need self-evident. The purposes of the project were to develop quality instructional resource materials and a Teacher's Handbook for the Occupational Investigation component of Occupational Orientation. Objectives, limitations, and methods and procedures of the project were considered briefly, as the means by which the scope of the project was determined.

The remaining chapters are organized in the following manner. In Chapter 2, literature related to design and course of the project was reviewed. The results of the application of the Developmental Research Model were reported in Chapter 3. Conclusions and recommendations that were based upon the outcomes of the project were included as the final Chapter 4.

CHAPTER II

RELATED LITERATURE

The design of this developmental research project was based upon a selective review of the literature. Key decisions in the developmental research process were influenced by information regarding career education and occupational orientation. The research process enlisted in the study was the result of an adaptation of a developmental research and utilization model. Since the purpose of the project was to immediately develop curricular materials that were based upon extant teaching strategies, the literature review may be represented as a survey, rather than a comprehensive account. The following topical areas were included in the review: career education, occupational orientation, and developmental research and utilization.

CAREER EDUCATION

Although many educators have a general appreciation of the concept of "career education," some confusion may be encountered in defining the term. A definition that is widely used first appeared in the seminal work, Career Education: What It Is and How to Do It.

> (Career education is) . . . the total effort of public education and the community aimed at helping all individuals to become familiar with the values of a work-oriented society, to integrate these values into their personal value systems, and to implement these values into their personal lives in such a way that work becomes possible, meaningful, and satisfying to each individual. (Hoyt et al., 1972: 1).

The definition implies that career education impacts upon most facets of life with the ultimate aim of an individual securing a personally rewarding occupation. The breadth of the concept has resulted in the proliferation of other, sometimes conflicting, definitions.

Baily and Stadt (1973: 30-54) discussed the emergence of career education as a major component in the educational reform movement of the 1970s. The reform movement addressed the need for greater relevance and accountability in education. In this vein, education was reconceptualized as a process by which individuals are prepared to function happily and productively in society. College-preparatory curricula that stressed excellence, or one-sided accountability to educational systems instead of learners, were targeted for change by the reform movement. More humanistic, process education--in which "learning how to learn" received great attention--was identified as a viable alternative to traditional, content-oriented education (Baily and Stadt, 1973: 52). Career education was described as a central concern of this new curriculum. Education which stressed flexible entry and change in the labor market was viewed as the process by which individuals could become life-long learners (Baily and Stadt,

1973: 51). The generality of this approach to career education has resulted in some confusion of the term with vocational education, career development, and career (vocational) guidance.

Vocational educators can readily claim that they have conducted career education for years. A major function of vocational education is the satisfaction of the employment needs of individuals and society (Baily and Stadt, 1973: 183-234). In this sense, career education and vocational education may be equated. However, vocational education has historically emphasized the provision of specific, usually psychomotor skills-oriented, training for identified occupations (e.g., Bailey, 1976: 32). Specific work preparation of this nature may be viewed as a component of the global concept of career education, rather than a synonym for the term. In recent years, vocational education has expanded its base by incorporating in its curricula preparation for employability per se and information regarding occupations and the world of work, both of which may be viewed as components within career education.

Career development has also been confused with career education. "Career development" may be defined as ". . .the accumulation of individual behaviors related to work, both before and after entry into an occupation" (Bailey and Stadt, 1973: 347). Therefore, career development is related to both vocational and career education. Career development may be viewed as a lifelong, maturational process--as manifested in the various theories of career development. However, from a curricular perspective, career development refers to the learning outcomes of career education (Bailey, 1976: 31-32; Bailey and Stadt, 1973: 347). Career guidance may be differentiated from career education in terms of its scope.

Career guidance is usually conducted on an individual or small-group basis while career education is aimed at larger groups of learners. Overlap in the domains of career education and career guidance occur when the terms are defined as types of delivery systems. Similarly, the terms may be confused when they are defined as functions of program level or curriculum components (Bailey and Stadt, 1973: 346). For example, occupational investigation and developmental group guidance may be considered somewhat analogous from the programmatic perspective. Career education assumes greatest distinctiveness as a construct when it is regarded as a concept and a program (Bailey and Stadt, 1973: 346).

The definition of career education which has greatest impact upon the present research effort was incorporated in a developmental curriculum model (Bailey and Stadt, 1973: 344-380).

> Career education refers to educational programs and curriculums at many different developmental levels, and provided by several types of delivery systems, which provide experiences designed to help individuals become oriented to, select, prepare for, enter, become established, and advance in an individually satisfying and productive career. Basic to the concept of career education is the recognition that preparation for a career role must begin in early childhood if the individual is to develop the concepts, attitudes, and skills

> which insure freedom of choice and expand career options. Career education eliminates artificial distinctions between "general" and "vocational" education by fusing the two in a manner which enables the student to better solve personal, social, and career-related problems (Bailey and Stadt, 1973: 346-347).

The clearly developmental emphasis of this definition renders middle school and junior high school important settings for career education. Evans, Hoyt, and Mangum (1973) devoted an entire text to the description of career education in the middle/junior high school. The ends of career education are especially crucial for learners in the aforementioned delivery systems.

The ends of career education, including several types of concepts and skills, were specified by Bailey (1976: 32).

1. Understanding and implementing self.
2. Understanding and preparing for work.
3. Accepting responsibility for career planning.
4. Developing skills in decision-making and information processing.
5. Relating to individuals and groups.
6. Developing and clarifying attitudes and values toward work.

These ends generally represent the goals of Occupational Orientation in the state of Texas.

OCCUPATIONAL ORIENTATION

Since the present research project addressed the needs of a specific career education program, review has been limited to occupational orientation in Texas. The review focuses upon the two components of Occupational Orientation Education, Occupational Investigation (OI) and Occupational Exploration (OE), with the former component receiving greater attention that the latter. The program standards (TEA, 1979) were primary resources in the review.

The Occupational Investigation and Occupational Exploration courses were designed to prepare average and handicapped students to have a greater understanding of educational and vocational options and to assist them in making meaningful and informed occupational choices. Each of the instructional programs is briefly reviewed.

Occupational Investigation

According to the program standards (TEA, 1979), Occupational Investigation was designed to assist students in discovering their vocational interests; determining their occupational and educational aptitudes; and becoming knowledgeable about occupational opportunities, occupational requirements, and training opportunities. After receiving Occupational Investigation instruction, the student should have acquired sufficient information to select one or more occupational clusters or families for in depth exploration. Also, the student who completes the course in middle/junior high school should be prepared to make a tentative educational plan for high school. To achieve the aims of the program, Occupational Investigation is composed of four phases of instruction.

The phases of instruction are offered to inform students about economic and societal factors which influence occupational decisions as well as educational programs and courses which facilitate planning and achieveing tentative career choices. In addition, Occupational Investigation provides students opportunities to study the fifteen occupational clusters and to gain awareness of interests and aptitudes through self-appraisal. As emphasized in a description of middle/junior high school career education (Evans, Hoyt, and Mangum, 1973: 12-13), Occupational Investigation offers "hands-on" and thought-provoking experiences that facilitate practical, life-long learning.

Occupational Investigation guides the student through a personal inquiry into the world of work. Since functional literacy, sufficient self-concept, and adequate decision-making skills are important in many walks of life, Occupational Investigation may be considered a central component in the broad-based, humanistic career education scheme described by Bailey (1976). Occupational Exploration, the second component, places greater stress upon developing vocational skills through more intensive, specialized study.

Occupational Exploration

Occupational Exploration is the Occupational Orientation instructional component which stresses the acquisition of basic vocational information in a specific area. Upon completion of the exploration component, the student should be able to select a high school educational program which will facilitate entry into the labor market immediately upon leaving high school or entry into a postsecondary training program. Instruction consists of in-depth study of one of the fifteen occupational clusters: Agri-Business and Natural Resources, Business and Office, Communication and Media, Construction, Consumer and Homemaking, Environment, Fine Arts and Humanities, Health, Hospitality and Recreation, Manufacturing, Marine Science, Marketing and Distribution, Personal Services, Public Services, and Transportation. The in-depth exploration of one of the occupational clusters involves opportunities for students to observe workers in their occupational environments and to engage in appropriate "hands-on" experiences in order to acquire preliminary skills. The Occupational Exploration course of instruction builds upon the tentative

career decisions made in Occupational Investigation. This sequence promotes efficient career education.

From a developmental guidance perspective (e.g., Bailey and Stadt, 1973), Occupational Investigation may be most effective as a seventh or eighth grade placement. However, the program standards (TEA, 1979) allow completion of Occupational Investigation for grades 7-12, as either an eighth or ninth grade course offering. Similarly, Occupational Exploration may be pursued by a broad range of students. Yet, ideally, the course would be completed in the ninth grade. When this sequence of Occupational Orientation has been completed, students should be able to adequately select from vocational and academic high school courses the programs that best meet their postsecondary employment or training needs.

Curriculum may be developed in such a manner that the objectives of Occupational Orientation--specifically, the investigation component--may be achieved as efficiently as possible. Several models influenced the present developmental research effort. A Developmental Research and Utilization (DRU) Model was modified and adopted to meet the product development needs of the project.

DEVELOPMENTAL RESEARCH AND UTILIZATION

Several models were enlisted during the course of the project. A Developmental Research Model ultimately influenced the construction of the first draft of the resource materials, as well as their subsequent revision and final production. The models are briefly described.

The Instructional System Development (ISD) Model (Department of the Air Force, 1974) was selected at the outset of the project since the project proposal was influenced by this conceptualization of the development research process. The steps in ISD are listed.

1. Determine Job Performance Requirements
2. Determine Training Requirements
3. Determine Criterion Objectives
4. Develop Criterion-Referenced Tests
5. Select Media/Methods
6. Develop Instructional Materials
7. Validate and Revise Instructional Materials
8. Conduct Instructional Program
9. Evaluate Instructional Program

Although the ISD model provides an excellent basis for the construction of instructional materials, the model was abandoned prior to formal development efforts.

The ISD model is best suited for curricular innovation in established educational programs. Many of the vocational programs in the state of Texas possess the stability in program standards and classroom practices required for product development via ISD. The standards and practices of the new Occupational Investigation program do not lend themselves to the types of analyses required in ISD. Furthermore, the purpose of the project was to develop resource materials, rather than a comprehensive instructional system. Therefore, the project was initiated with the assistance of another systems model.

During the early analysis phase of developmental research (see Appendix A), a more appropriate systems model--the general curriculum model of Bailey and Stadt (1973: 308-343)--guided the progress of the project. The basic purpose, rationale, assumptions, goals, and objectives were formulated with the aid of the model during this period. The phases of the general curriculum model may be cited.

1. Selection of a Curricular Language
2. Formulation of Goals and Objectives
3. Preparation of Instructional Products
4. Experimental Tryout, Evaluation, and Quality Control
5. Diffusion and Adoption

This general model, with its emphasis upon diffusion as well as production, suggests the influences of the planned change and educational innovation formulations upon curriculum development. The well-known classification scheme of Guba and Clark (1965) and the planned change approach of Havelock (1970) and others at the Center for Research on Utilization of Scientific Knowledge, Institute of Social Research (University of Michigan) have influenced profoundly the course of American education. The process of planning for change in complex systems also interested social workers at the University of Michigan. Thomas (1977) presented a comprehensive Developmental Research and Utilization (DRU) model for program planning and developing in the human services profession, including social welfare and behavior therapy. This model was based upon the planned change approach of the Institute of Social Research and was adapted to meet the novel needs of the present project.

The Developmental Research and Utilization (DRU) model (Thomas, 1977) was well-suited to its application in the project because it represents a comprehensive planning perspective rather than a restricted guide to development. The DRU model is a comprehensive, systematic process by which developmental research may be conducted. The phases in DRU correspond to those included in the Developmental Research Model finally enlisted in this project.

I. Analysis

II. Development

III. Evaluation

IV. Diffusion

V. Adoption

The Developmental Research Model has been described in more detail in Appendix A.

Both the DRU and Developmental Research models were influenced by the schema for educational change attributed to Guba and Clark (1965). In this schema, curricular innovation may be considered an applied research function consisting of invention, development, dissemination, diffusion, installation, and institutionalization. In view of the immediate need for quality curricular materials for Occupational Investigation and the complementary need that the materials be based upon effective extant teaching strategies, the systems approach of the aforementioned educational change models guided the present developmental research efforts.

The importance of career education to the development of the individual has been recognized in recent years. Both personal satisfaction and societal needs may be served by an effective occupational orientation process. Occupational Investigation instruction in Texas provides students with opportunities for making sound career decisions; however, a need for quality curricular materials in the course has been recognized. The present project adapted a Developmental Research and Utilization Model to meet its unique needs. The novelty of the Occupational Investigation course and its content required an appropriate comprehensive perspective for the development and evaluation of resource materials. Therefore, the steps in this developmental research project may be somewhat equated with a planned educational change effort. The results of the application of a Developmental Research Model (Appendix A) are discussed in the next chapter.

CHAPTER III

RESULTS

The most obvious results of this project were the Occupational Investigation Guides and the Teacher's Handbook. Both the purposes and the objectives of the project were essentially satisfied by the development of the aforementioned resource materials. Nevertheless, the outcomes of the project may be assessed also through examination of the activities and events that contributed to the completion of the product development effort. The Developmental Research Model (Appendix A) was an excellent tool for managing the project and examining the specific development activities qua outcomes. The results of a field testing of the materials were discussed within the parameters of the model since revision of the prototype materials, rather than assessment of the project or finished products, was the central concern.

DEVELOPMENTAL RESEARCH OUTCOMES

The outcomes of the developmental research efforts may be considered according to the phases of model. The Diffusion (IV) and Adoption (V) Phases received little attention because product development, and not program innovation, was the focus of the project.

Analysis Phase

In this project, the problem analysis and identification efforts were completed prior to the distribution of copies of the Request for Application (TEA, 1978), Therefore, the "Problem Statement" operation (See Appendix A) occurred prior to the outset of the project. The "Information Selection" operation was completed during June 1-June 30, 1978, by project personnel.

Among the exemplary activities conducted to select relevant information were ordering existing commercial and not-for-profit resource materials, and planning upcoming developmental research activities. Project personnel, including the curriculum specialist, were selected during this period to administer the project. However, personnel matters generally were relegated to the program management, instead of the developmental research domain. Throughout the contract period, project activities were closely coordinated with the program director and teacher educators for Occupational Orientation. Guest writers and consultants were also selected during the period; however, their contribution to the project has been classified in the Development Phase.

Development Phase

Activities that were initiated during the Development Phase constituted the major focus of the project. The gist of the program was devoted to gathering background information, innovating a product, constructing a prototype, and revising the product based upon data

acquired during the Evaluation Phase. Each of the operations associated with the Development Phase is discussed below.

The "Information Gathering and Assessment" operation was represented by a brief literature review, some site visits, and a meeting of guest writers and consultants. Planning for the July 1978 meeting of guest writers was a major concern of this phase. Also, various resource materials that were purchased or borrowed from the library were collected for the guest writers. The outcomes of the writing effort were considered as evidence for the "Product Innovation" operation.

During July 1978 the guest writers and consultants convened to assemble the background materials and teaching strategies as first drafts of activities for the Occupational Investigation Guides. A major function of this draft writing was the selection of a format and curricular language for the activities that would, in final draft, represent the guides. The general format used in the presentation of activities within each guide was the result of "brainstorming" during product innovation. The content and scope of the activities were modified as needed to construct an initial prototype for field testing.

The prototype was constructed during August 1978-December 1978, a period that was devoted to "Product Realization" operations. The rough drafts of activities that were completed by guest writers were revised and modified as needed by the curriculum specialist and the curriculum development assistant. The activities were then compiled by subject to create the field-test versions of Self-Appraisal, Economic and Societal Factors (called Societal and Economic Factors), Occupational Clusters (called Fifteen Clusters), and Educational Planning. The new product was subjected then to evaluation.

Evaluation Phase

Beginning in September 1978 and ending in March 1979, the guides were distributed to field-test instructors and returned by mail to the curriculum specialist on a guide-by-guide basis. That is, evaluation was conducted sequentially during the period, in the following order: Self-Appraisal, Economic and Societal Factors, Occupational Cluster, and Educational Planning. This trial implementation was sequential in order to make the materials available to field-test instructors as soon as possible. Nevertheless, the consistently offered reason for failure to return field-test materials was "The guide arrived at the wrong time for inclusion in my course." Of the 69 field test packets distributed for evaluation of Self-Appraisal and then Economic and Societal Factors, 83.4 percent were returned in sufficient time to influence the revision of the guides. Of 75 packets distributed in the evaluation of the remaining guides, 85.7 percent were returned in a timely manner. The Evaluation Phase consisted primarily of the field test.

Instructors who participated in the field test were volunteers selected by the Program Director for Occupational Orientation. The field test group is described in Appendix B. Upon return of the Field-Test Evaluation Forms by a certain deadline established for

each guide, the data were organized into ratings which represented the efficiency and effectiveness of the activities. Then the percentages of positive responses to the Field Test Evaluation Form were compiled by item. Finally, each guide was revised sequentially, based upon the field test data as well as written comments submitted by the instructors. Each change in activities within each guide was justified by field-test data or advisory committee comments regarding potential sex biases. Simple modifications were made also to correct grammatical errors and to insure stylistic consistency. The distribution of changes was tabulated to describe the outcome of the revision process. Each of the aforementioned data arrays characterizes the evaluation and revision efforts associated with the guides.

The field-test ratings for the activities in Self-Appraisal were computed by adding the frequencies of positive ("Yes") responses for the following Field Test Evaluation Form items: Objective 1, Objecjective 2, Objective 3, Information Sheet 1, Transparency Master 1, Transparency Master 2, Assignment Sheet 1, Assignment Sheet 2, and Directions 1. These items were selected because they were the least ambiguous and most relevant questions on the evaluation form. The actual field-test rating was determined by dividing the sum of the frequencies for positive responses to the aforementioned items by the sum of the frequencies for positive and negative responses and multiplying this proportion by 100. The field test-ratings of the activities in Self-Appraisal are included in Table 2.

TABLE 2

FIELD-TEST RATINGS
OF SELF-APPRAISAL

Title of Activity	Rating
Getting Acquainted	96.49
Recognizing Basic Needs	85.37
Understanding Oneself	92.31
Taking a Self-Assessment	93.06
Identifying Personal Characteristics	95.67
Recognizing Individuality	96.88
Perceiving Oneself	100.00
Finding One's Interests	95.45
Recognizing Strengths	96.05
Recognizing Abilities	100.00
Understanding Personal Success	94.44
Building a Winning Personality	100.00
Taking Self Inventory	88.89
Completing an Interest Inventory	90.90
Compiling a Personality Inventory	97.87
Understanding Aptitude	96.34
Problem Solving	94.64
Following Directions	100.00
Building Trust	100.00
Evaluating One's Grades	93.06
Recognizing Occupations	96.36
Recognizing Fields of Work	97.14
Relating Personal Requirements to Occupations	100.00
Identifying Job Values	91.11
Identifying Terms	100.00
Mean	95.66
Standard Deviation	3.75

The ratings for Self-Appraisal activities summarized in Table 1 ranged from 85.37 to 100.00. The mean rating of the activities, which may be interpreted as a rating for the entire guide, was 95.66, while the standard deviation was 3.75. Activities that received a rating of less than 80.00 or that were determined to be sex-biased or too complex (i.e., inappropriate concept or reading level) were deleted from the final copy of Self-Appraisal. The responses to all Field Test Evaluation Form items are included in Table 3.

TABLE 3

RESPONSES TO SELF-APPRAISAL
FIELD TEST EVALUATION FORM

QUESTION	Percent Responding YES
Objectives	
1. Are the objectives clearly written?	98.43
2. Are the behaviors expected of the student realistic?	93.58
3. Are the goals for this area of instruction reflected in the objectives of these activities?	96.17
Information Sheet	
1. Is the information clearly written and presented on the student's level?	95.47
2. Would illustrations, such as transparency masters enhance the information presented?	58.82
Transparency Master	
1. Are the transparency masters presenting necessary pictorial information?	92.31
2. Are the transparency masters clear and concise?	91.94
3. Can the transparency masters be used as student handouts?	90.48
Assignment Sheets	
1. Do the assignment sheets allow for creative thinking?	92.36
2. Are the assignments practical for the amount of time and the type of equipment in your class?	90.36
Directions	
1. Were the directions clearly written?	96.90
2. Was the suggested time frame appropriate?	81.75

The percentage of positive responses to Field Test Evaluation Form items which were summarized in Table 3 ranged from 58.82 to 98.43. The 58.82 percent response to the question "Would illustrations, such as transparency masters, enhance the information presented?" indicated that slightly more than one-half of the field test respondents preferred more illustrations in Self-Appraisal. This preference was obvious in the evaluations of the remaining guides, as well. The 81.75 percent response to the question "Was the suggested time frame appropriate?" was the result of an approximately 50 percent overestimation of time on the prototype activities. In general, the responses to the Field Test Evaluation Form revealed a basic satisfaction with the quality of Self-Appraisal.

The distribution of changes in the Self-Appraisal activities, presented below in Table 4, reflected the significance of the time overestimation. However, the greatest percentage of changes (30.56) were made in the DIRECTIONS section of the activities. Among the 18.05 percent of changes associated with the OTHER category was the addition of six transparency masters and two illustrations. This area of change demonstrated the attention paid to the responses of Information Sheet 2, included in Table 3. Other revisions to Self-Appraisal were classified according to the categories in Table 4.

TABLE 4

DISTRIBUTION OF CHANGES IN SELF-APPRAISAL

Section of Activities	Percentage of Changes
ACTIVITY (title)	0.00
OBJECTIVE	13.89
APPROXIMATE TIME	23.61
MATERIALS	13.89
DIRECTIONS	30.56
OTHER (Handout, Teacher Reference, or Transparency Master)[a]	18.05

[a]Other items were included in the activities; however, they were listed by title in the MATERIALS section.

The field-test ratings for the activities in Economic and Societal Factors failed to include the Directions 1 item; therefore, the ratings for this guide should not be compared directly with the ratings of the other guides. Nevertheless, the computations required to generate the ratings were otherwise the same as those used for Self-Appraisal. The ratings for Economic and Societal Factors follow in Table 5.

TABLE 5

FIELD-TEST RATINGS OF
ECONOMIC AND SOCIETAL FACTORS

Title of Activity	Rating
Locating Employment Sources	97.22
Using the Classified Ads	93.48
Locating Salaries in Classified Ads	100.00
Reading Classified Ads	97.96
Selecting Suitable Jobs	100.00
Keeping a Record of Alternative Job Sources	100.00
Learning About the Services of the Texas Employment Commission	100.00
Using Private Employment Agencies	100.00
Using a Telephone Correctly	94.74
Using the Teletrainer or Telephone Simulation	100.00
Learning a Business Letter Form	96.20
Using a Basic Letter Form to Request a Job Application	100.00
Defining Terms on Job Applications	98.73
Writing a Job Application	100.00
Writing a Resume	85.19
Preparing for a Job Interview	95.40
Simulating a Job Application/Job Interview	97.56
Recognizing Words Related to Getting and Keeping a Job	96.77
Recognizing Employee's Responsibilities to the Employer	93.10
Recognizing Employer's Responsibilities to the Employee	100.00
Getting Along with Other Employees	100.00
Getting Ahead on the Job	100.00
Learning Why People Change Jobs	100.00
Understanding Gross and Net Income	95.42
Explaining Terms	100.00
Calculating Salary	97.83
Completing a Financial Statement	93.02
Planning Your Budget	95.45

TABLE 5 (continued)

Title of Activity	Rating
Looking at Food Expenses	100.00
Examining Bargains	100.00
Shopping for Bargains	94.74
Testing Different Product Brands	100.00
Understanding Product Development	100.00
Practicing Spelling Words and Numbers	97.06
Examining a Check	96.33
Keeping Checking Account Records	96.88
Practicing Record Keeping	96.15
Calculating with Decimal Points	100.00
Opening a Checking Account	100.00
Cashing Checks	100.00
Mean	97.73
Standard Deviation	3.03

In Table 5, the ratings of the activities ranged from 85.19 to 100.00. Instructor comments for the lowest-rated activity, "Writing a Resume," focused upon the need to construct materials on the subject that was more relevant to middle school-aged students. Economic and Societal Factors received a mean rating of 97.73, rendering it the highest-rated guide. Similarly, 50 percent of the activities received a score of 100.00. The favorable reception of the guide was supported further by the percentages of positive ("YES") responses assigned to the items on the Field Test Evaluation Form. The percentages are represented in Table 6.

TABLE 6

RESPONSES TO ECONOMIC AND SOCIETAL FACTORS
FIELD TEST EVALUATION FORM

Question	Percent Responding YES
Objectives	
1. Are the objectives clearly written?	99.34
2. Are the behaviors expected of the student realistic?	98.05
3. Are the goals for this area of instruction reflected in the objectives of these activities?	99.66
Information Sheet	
1. Is the information clearly written and presented on the student's level?	95.12
2. Would illustrations, such as transparency masters enhance the information presented?	64.19
Transparency Master	
1. Are the transparency masters presenting necessary pictorial information?	100.00
2. Are the transparency masters clear and concise?	97.89
3. Can the transparency masters be used as student handouts?	100.00
Assignment Sheets	
1. Do the assignment sheets allow for creative thinking?	93.24
2. Are the assignments practical for the amount of time and the type of equipment in your class?	95.32
Directions	
1. Were the directions clearly written?	Omitted *
2. Was the suggested time frame appropriate?	Omitted *

*The items were excluded inadvertently from the Field Test Evaluation Form that was sent to instructors. The written comments of the instructors were used to evaluate the area.

Nearly two-thirds (64.19 percent) of the field-test participants expressed a desire for more illustrations and transparency masters in the Information Sheet 2 item. During the revision process, an operation within the Development Phase, seven transparency masters and one illustration were added in order to meet the apparent need. Another interesting rating was the 93.24 percent response to the Assignment Sheet 2 item. Instructor comments substantiated the perception that teachers thought the assignment sheets were not creative. However, the instructors also noted that creativity could be deemphasized in the important and relatively concrete area of economic and societal factors that affect the world of work. Overall, the percentages denoted few problems with the guide. Nevertheless, some changes were required. The changes are summarized in Table 7.

TABLE 7

DISTRIBUTION OF CHANGES IN ECONOMIC AND SOCIETAL FACTORS

Section of Activities	Percentage of Changes
ACTIVITY (title)	1.03
OBJECTIVE	8.25
APPROXIMATE TIME	36.08
MATERIALS	19.59
DIRECTIONS	18.56
OTHER (Handout, Teacher Reference, or Transparency Master)[a]	16.49

[a]Other items were included in the activities; however, they were not listed by title in the MATERIALS section.

The distribution of changes described in Table 7 must be interpreted with caution. The 36.08 percentage of changes attributed to APPROXIMATE TIME may be inflated somewhat. Since data regarding actual times for activities were not secured by means of the Field-Test Evaluation Form--the relevant items were inadvertently omitted from the forms--some estimates were used. Whenever possible, instructor comments were used to revise the APPROXIMATE TIME component of the activities. Occasionally, when comments were insufficient, times were modified based on the results for similar items in Self-Appraisal. In view of the fact that APPROXIMATE TIME is self-explanatory and sufficiently flexible, little revision time was invested in modification of the time ranges. Changes in MATERIALS (19.59 percent), DIRECTIONS (18.56 percent), and OTHER (16.49 percent) were influenced by grammatical and stylistic concerns. There were greater problems with content in Occupational Clusters.

The field-test ratings for Occupational Clusters were computed according to the formula discussed earlier in connection with Self-Appraisal. Although one of the goals of the revision process was to exclude activities that did not reach the 80.00 cutoff rating, unusual circumstances led to the inclusion of some low-rated activities. The ratings are included in Table 8.

TABLE 8

FIELD-TEST RATINGS
OF OCCUPATIONAL CLUSTERS

Title of Activity	Rating
Introduction	
Learning Occupational Clusters by Association	100.00
Reinfrocing the Names of the 15 Occuaptional Clusters	89.47
Naming the Occuaptional Clusters	96.77
Clustering Occupations by Titles	100.00
Associating Items with the Occupationsl Clusters	91.67
Using Classified Ads to Identify Occupations by Cluster	100.00
Locating Occupational Information	100.00
Using Occupational Information Resources	88.24
Mean	95.77
Agri-Business and Natural Resources	
Introducing the Agri-Business and National Resources Cluster	66.67
Understanding the Importance of the Agri-Business and Natural Resources Cluster	88.68
Identifying Leaf Shapes	89.47
Locating Agri-Business and National Resources Regions	90.63
Mean	83.86

TABLE 8 (continued)

Title of Activity	Rating
Business and Office	
Introducing the Business and Office Cluster	96.97
Participating in Business Activities	78.57
Interviewing a Person in a Business and Office Occupation	100.00
Communicating on Business Telephone	97.30
Mean	93.21
Communications and Media	
Introducing the Communications and Media Cluster	87.50
Communicating Effectively	100.00
Learning About Television Production	92.86
Decoding Messages	96.00
Mean	94.09
Construction	
Introducing the Construction Cluster	100.00
Recognizing Who Constructs a House	96.43
Learning About the Work of Architects	97.14
Relating Personal Values to Construction Careers	96.15
Mean	97.43

TABLE 8 (continued)

Title of Activity	Rating
Consumer and Homemaking	
Introducing the Consumer and Homemaking Cluster	100.00
Locating Consumer and Homemaking Occupations	96.00
Identifying the Duties and Responsibilities of the Homemaker Occupation	100.00
Working in Consumer and Homemaking Occupations	78.57
Mean	93.64
Environment	
Introducing the Environment Cluster	NR[a]
Recycling Paper	94.12
Conducting an Environmental Experiment	100.00
Naming Environmental Occupations	100.00
Mean	98.04[b]
Fine Arts and Humanities	
Introducing the Fine Arts and Humanities Cluster	88.89
Reviewing a Television Show	96.30
Describing Fine Arts adn Humanities Occupations	100.00
Engaging in Fine Arts and Humanities Activities	NR[a]
Mean	95.06[b]

TABLE 8 (continued)

Title of Activity	Rating
Health	
Introducing the Health Cluster	100.00
Exploring Health Care	100.00
Learning About the Requirements for Health Occupations	100.00
Recognizing Health Occupations	89.29
Mean	97.32
Hospitality and Recreation	
Introducing the Hospitality and Recreation Cluster	NR[a]
Working in a Travel Agency	100.00
Planning Recreational Activities	100.00
Recognizing Individual Recreational Preferences	100.00
Mean	100.00
Manufacturing	
Introducing the Manufacturing Cluster	100.00
Identifying Manufacturing Jobs	97.14
Inventing New Products	95.24
Flying	92.86
Mean	96.31

TABLE 8 (continued)

Title of Activity	Rating
Marine Science	
Introducing the Marine Science Cluster	100.00
Going Fishing	100.00
Exploring Dangers of the Deep	93.33
Learning About Marine Science Subjects	100.00
Mean	98.33
Marketing and Distribution	
Introducing the Marketing and Distribution Cluster	93.75
Conducting an Advertising Campaign	98.00
Conducting a Marketing Survey	100.00
Interviewing a Person in a Marketing and Distribution Occupation	100.00
Mean	97.94
Personal Services	
Introducing the Personal Services Cluster	87.50
Unscrambling Occupations	95.56
Understanding Personal Services Occupations	100.00
Observing Personal Services Occupations	100.00
Mean	95.77

TABLE 8 (continued)

Title of Activity	Rating
Public Services	
Introducing the Public Services Cluster	100.00
Identifying Public Services Occupations	95.24
Guessing Public Services Occupations	100.00
Simulating a Juvenile Court Hearing	100.00
Mean	98.81
Transportation	
Introducing the Transportation Cluster	100.00
Learning About the Occupation of Taxi Driver	100.00
Imagining Transportation of the Future	100.00
Identifying Transportation Terms	95.24
Mean	98.81
All Activities[c]	
Mean	95.81
Standard Deviation	6.22

a--No Response

b--N=3

c--Statistics apply to sum of individual activity ratings

Ratings in Occupational Clusters ranged from 66.67 to 100.00. Thirty-three or 48.53 percent of all activities in the guide received the rating of 100.00. The mean rating was 95.81, slightly higher than that of Self-Appraisal; however, the 6.22 standard deviation indicated great variability in the ratings of the 68 activities. The lowest rating (66.67) was paradoxical in that the other "Introducing the ... Cluster" activities, which used virtually the same materials and processes, received favorable ratings ranging from 87.50 to 100.00. Therefore, the activity was not omitted from the guide. Two other activities received ratings that were less than the 80.00 criterion.

The greatest problem associated with "Participating in Business Activities" was that field-test instructors stated that the assignment was not practical for the amount of available class time. (See Assignment Sheet 2, Table 9.) Although this observation may be accurate in individual classes, a major goal of Occupational Investigation is the provision of opportunities for "hands-on" experiences. Therefore, the activity was not omitted, even though it received a rating of 78.57.

Similarly, "Working in Consumer and Homemaking Activities," an activity that received an overall rating of 78.57, was not omitted. In fact, instructor comments suggested that the activity was very effective for some students. In general, the means for the 16 content areas within Occupational Clusters affirmed that the guide was well-received, and yet, in need of some revisions. The areas for potential change were clarified by the responses to the Field Test Evaluation Form summarized in Table 9.

TABLE 9

RESPONSES TO OCCUPATIONAL CLUSTERS
FIELD TEST EVALUATION FORM

Question	Percent Responding YES
Objectives	
1. Are the objectives clearly written?	99.58
2. Are the behaviors expected of the student realistic?	96.58
3. Are the goals for this area of insturction reflected in the objectives of these activities?	96.96
Information Sheet	
1. Is the information clearly written and presented on the student's level?	98.64
2. Would illustrations, such as transparency masters enhance the information presented?	55.88
Transparency Master	
1. Are the transparency masters presenting necessary pictorial information?	96.72
2. Are the transparency masters clear and concise?	98.41
3. Can the transparency masters be used as student handouts?	96.92
Assignments Sheets	
1. Do the assignment sheets allow for creative thinking?	92.97
2. Are the assignments practical for the amount of time and the type of equipment in your class?	87.43
Directions	
1. Were the directions clearly written?	98.94
2. Was the suggested time frame appropriate?	81.77

As with the other guides, responses to the Field-Test Evaluation Form indicated that the time parameters suggested for the activities was inappropriate. Percentages of positive (YES) responses to the Assignment Sheets 2 and Directions 2 items documented this general concern with Occupational Clusters. Table 9 also suggested the strength of the guide, clarity in both objectives and directions. Finally, a slight concern (i.e., 55.88 percent responding YES) for the need for additional illustrations was apparent in the field test evaluation. Actual changes made in revising the guide are reported in Table 10.

TABLE 10

DISTRIBUTION OF CHANGES IN
OCCUPATIONAL CLUSTERS

Section of Activities	Percentage of Changes
ACTIVITY (title)	0.00
OBJECTIVE	9.86
APPROXIMATE TIME	56.34
MATERIALS	5.63
DIRECTIONS	5.63
OTHER (Handout, Teacher Reference, or Transparency Master)[a]	22.54

[a]Other items were included in the activities; however, they were listed by title in the MATERIALS section.

Two illustrations and seven transparency masters were added to activities in Occupational Clusters. Therefore, a significant proportion of changes, as noted in Table 10, were concentrated in the OTHER section or category. Based upon both overestimation and underestimation of time, the APPROXIMATE TIME section encompassed 56.34 percent of all changes in the guide. In this respect, Occupational Clusters and Educational Planning were subjected to similar scrutiny.

The field test rating for each activity in Educational Planning is reported in Table 11.

TABLE 11

FIELD-TEST RATINGS
OF EDUCATIONAL PLANNING

Title of Activity	Rating
Reinforcing Learning	100.00
Understanding the Concept of "Lifetime"	97.44
Isolating Significant Life Experiences	97.23
Charting Goals	94.74
Establishing Goals	92.98
Classifying Goals	100.00
Realizing Short-Term Goals	92.86
Planning Life Goals	97.14
Achieving One's Ultimate Goal	100.00
Practicing Decision-Making	95.77
Identifying Influences upon Decision-Making	100.00
Solving Problems	91.43
Discovering High School Programs	100.00
Researching High School Curriculum	97.22
Understanding High School Graduation Requirements	100.00
Charting a Tentative High School Plan	100.00
Researching Training Requirements	86.67
Obtaining Information About Postsecondary Education	100.00
Sharing Educational Information	100.00
Researching Post-High School Training Opportunities	100.00
Learning Educational Vocabulary	98.25
Mean	97.23
Standard Deviation	3.66

The mean rating of 97.23 suggested that the guide was rated by instructors as highly as Economic and Societal Factors. However, the standard deviation of 3.66 indicated some variability in rating. Of the 21 activities, 47.62 percent received a rating of 100.00. Also, the activities were rated consistently well above the 80.00 criterion for inclusion of activities. Therefore, the guide appeared to present few problems for the revision effort. This generalization was supported by the responses to the Field-Test Evaluation Form that are summarized below in Table 12.

TABLE 12

RESPONSES TO EDUCATIONAL PLANNING
FIELD TEST EVALUATION FORM

Question	Percent Responding YES
Objectives	
1. Are the objectives clearly written?	100.00
2. Are the behaviors expected of the student realistic?	96.26
3. Are the goals for this area of instruction reflected in the objectives of these activities?	98.10
Information Sheet	
1. Is the information clearly written and presented on the student's level?	95.79
2. Would illustrations, such as transparency masters enhance the information presented?	66.25
Transparency Master	
1. Are the transparency masters presenting necessary pictorial information?	97.22
2. Are the transparency masters clear and concise?	97.14
3. Can the transparency masters be used as student handouts?	100.00
Assignment Sheets	
1. Do the assignment sheets allow for creative thinking?	95.89
2. Are the assignments practical for the amount of time and the type of equipment in your class?	92.00
Directions	
1. Were the directions clearly written?	100.00
2. Was the suggested time frame appropriate?	86.81

As noted in Table 12, the items of greatest concern were Information Sheet and Directions 2. Nearly two-thirds (66.25) of the instructors indicated that they would prefer more illustrations. To meet this need, four illustrations and two transparency masters were added to the guide. As frequently encountered in the Occupational Investigation Guides, the suggestive time frame was found to be inappropriate (Table 11: Directions 2). The illustration and the concerns were addressed in the revision efforts, to which reference is made in Table 13.

TABLE 13

DISTRIBUTION OF CHANGES IN
EDUCATIONAL PLANNING

Section of Activities	Percentage of Changes
ACTIVITY (title)	3.70
OBJECTIVE	3.70
APPROXIMATE TIME	59.26
MATERIALS	7.41
DIRECTIONS	7.41
OTHER (Handout, Teacher Reference, or Transparency Master)[a]	18.52

[a]Other items were included in the activities; however, they were listed by title in the MATERIALS section.

By far, the greatest attention in the revision of Educational Planning was invested in modifying the APPROXIMATE TIME section. A very significant proportion of time, 59.26 percent of all changes, was spent on this section. The OTHER category also received some attention in order to modify the activities to include the additional illustrations. Since the guides were drafted, evaluated, and then reviewed in sequence, Occupational Clusters and Educational Planning benefitted from experiences with the remaining guides. Occupational Clusters and Educational Planning required few major revisions.

Overall, the field testing of the prototypes of the Occupational Investigation guides was an effective means of evaluating the products from a developmental research perspective. Both the Field Test Evaluation Form responses and the instructor's comments were useful in determining the clarity, efficiency, and viability of the prototype activities. Ten activities were deleted because of severe problems identified by field test instructors, instances of sex bias and stereotyping noted by the advisory committee, or occurrence of very high concept or reading level observed by the editor and curriculum specialist. The evaluation of the prototype in the field indicated the need to "recycle" or return to the Development Phase for the aforementioned revisions. The revision of the prototype resulted in the final product prepared to accomplish the objectives of this research project. The Teacher's Handbook was developed and evaluated in a slightly different fashion.

Teacher's Handbook

The major function of the assembly of guest writers during July 1978 was to identify the curricular language and format for the activities within the guides. However, some time was invested also in the innovation of the Teacher's Handbook. Chapters that were outlined by the Program Director for Occupational Orientation (See Appendix A) were addressed by the guest writers and curriculum specialist. Given the novel assembly of information, the curriculum specialist and curriculum development assistant then began the task of constructing a first draft of the Teacher's Handbook. As the first drafts or prototypes of the chapters were completed, they were subjected to evaluation by means of a review by a select advisory committee. The advisory committee (See Appendix C) was selected on the basis of expertise in Occupational Orientation or Career Education and willingness to volunteer their consulting services.

Suggestions regarding the content and style of the handbook were incorporated into the revision process, which yielded the final product. The Teacher's Handbook was developed under the research contract to facilitate the selection and application of Occupational Investigation resource materials. The handbook was not reviewed in the field, with the permission of the Program Director, because it dealt extensively with programmatic matters (e.g., classroom organization) that could be most efficiently and uniformly handed by advisory committee members. The operations involved in the development and evaluation of the guides and the handbook, though different in content or extent, were logically equivalent.

SUMMARY

The aim of this project was to develop Occupational Investigation Guides and an Occupational Investigation Teacher's Handbook by means of an orderly developmental research process. The results of the project were the actual products as well as the operations conducted at each phase of the developmental research. The Analysis, Development, and Evaluation Phases were discussed. Special attention was paid to the outcomes of the field testing of the four guides--Self-Appraisal, Economic and Societal Factors, Occupational Clusters, and Educational Planning--and the advisory commitee review of the Teacher's Handbook.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Since the results of the project were rather concrete--that is, tangible products were developed--the conclusions which may be drawn are specific. However, somewhat more speculative recommendations are made.

CONCLUSIONS

The most general conclusion which may be drawn is that the Developmental Research Model was a useful tool in product innovation, development, and evaluation. Operations incorporated within the phases of the model functioned adequately as guides or cues for project activities. In effect, the model was an excellent heuristic device for systematic curriculum development.

The curriculum development process was expedited by the field testing of prospective activities. Two obvious conclusions were observed. Field-test instructors recorded, by Field Test Evaluation Form ratings and written comments, distinct preferences for illustrations in Occupational Investigation resource materials. Ratings of the activities (see tables in Chapter 3) also suggested preferences for paper-and-pencil instruments (inventories, etc.) and practical, "hands-on" activities. These preferences fit well with the course objectives. The field test additionally revealed a consistent need to adjust suggested time parameters for the activities. Overall, the field-testing operation was a successful evaluation enterprise.

Based upon statements by field-test instructors and observations of production problems, one may conclude that the sequential development of products had some undesirable outcomes. When materials arrived in the field at inappropriate points in the courses, they could not be evaluated by instructors. Therefore, some instructors, due to the organization of their courses, were able to make better use of the materials and to provide more and better evaluative data. One recommendation which is based in the experiences of this project is that activities should not be evaluated according to the sequence of the guides. Rather, activities for each guide should be developed simultaneously and tested accordingly. Other recommendations follow in the next section.

RECOMMENDATIONS

The major recommendation, arising from the outcomes of the present research project, is that the Developmental Research Model should be carried to its logical conclusion. The fourth and fifth phases of the model, Diffusion and Adoption, address the programmatic demands of Occupational Investigation. Diffusion has been facilitated by preparation of the Teacher's Handbook, presentation of product findings

at the Research Conference held during June 1979 at Texas A&M University, and planning for the August 1979 Occupational Investigation Workshop. Publication, training, and demonstration efforts could be conducted to implement further diffusion operations.

The Adoption Phase is concerned with the implementation and institutionalization of the product in Occupational Investigation programs throughout the state of Texas. Activities associated with this phase must be coordinated by the Program Director for Occupational Orientation and other administrative staff.

Further evaluation of the resource materials is recommended. The materials should be subjected to a criterion-referenced field test after the products have been implemented for a sufficient period of time. Such an evaluation would focus upon the effectiveness of the products with respect to assisting students in meeting the performance standards for Occupational Investigation.

The present project was undertaken to develop quality instructional materials which would facilitate the attainment of Occupational Investigation objectives. At a later date, a formal field test should be conducted to evaluate the extent to which the materials actually contribute to the acquisition of desirable student behaviors in this area of instruction.

SUMMARY

Based upon the results of the project, several conclusions were drawn. The major conclusion was that the Developmental Research Model served well as a heuristic device for curriculum development efforts. The outcomes associated with application of the model also led to some recommendations for product diffusion and adoption operation.

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APPENDIX A

DEVELOPMENTAL RESEARCH MODEL

Developmental Research Phase	Concerns	Operations	Exemplary Activities
I. Analysis	A. Problematic Human Condition	1. Problem Statement	Problem analysis and identification, "state of the art" review
	B. Basic Information Source	2. Information Selection	Selection of most relevant source, such as basic or applied research, scientific technology, practice experience
II. Development	C. Relevant Data	3. Information Gathering and Assessment	Literature review, site visits, consultation
	D. Product Design	4. Product Innovation	Novel assembly, novel application, invention, selection of curricular language
	E. New Product	5. Product Realization	Construction of prototype, written statement of practice procedure
III. Evaluation	F. Trial and Field Implementation	6. Trial Use	Pilot implementation, demonstration project, evaluation study
		7. Data Collection	Collection of outcome data by means of field experimentation, field study, evaluative research
	G. Outcomes of Use	8. Product Evaluation	Research evaluation, program evaluation cost-benefit analysis

Appendix A (Continued)

Developmental Research Phase	Concerns	Operations	Exemplary Activities
IV. Diffusion	H. Diffusion Media	9. Diffusion Media Preparation	Preparation of articles, books, and training media
		10. Product Information Dissemination	Publication, training, professional education, field demonstration workshop
V. Adoption	I. Broad Use	11. Implementation by Users	Use by practitioners, program change and administrative follow-through
		12. Product Institutionalization	

APPENDIX B

Instructors who participated in the field test represented many school districts throughout Texas. the following independent school districts were included in the field test.

District	Number of Participants	District	Number of Participants
Abilene	4	Harlandale	6
Alice	1	Harlingen	2
Austin	1	Houston	7
Azle	1	Huntsville	1
Bells	1	Hurst-Euless-Bedford	4
Brownwood	1	Irving	1
Canton	1	Killeen	2
Castleberry	1	La Marque	3
Clarksville	1	Lewisville	1
Cleburne	1	Northside	9
Corsicana	2	Pharr	1
Crowley	1	San Angelo	2
Eagle Pass	2	San Marcos	1
East Central	1	Santa Fe	1
Eden	1	Spring	1
Fredericksburg	1	Sulphur Springs	1
Ft. Bend	1	Tyler	2
Ft. Worth	1	Weatherford	3
Gatesville	1	Wilmer-Hutchins	1
Granbury	1	Windham	1

APPENDIX C

Advisory Committee: Teacher's Handbook

Dr. Bill Hollenback, Teacher Educator, North Texas State University

Dr. Ray Lee, Teacher Educator, Sam Houston State University

Dr. Pat McLeod, Professor, Department of Vocational Education, North Texas State University

Dr. Robert Smith, Associate Professor, Department of Student Personnel and Guidance, East Texas State University

Ms. Jessie Teddlie, President, Texas Vocational Guidance Association

Dr. Bob Mann, Program Director for Occupational Orientation, Department of Occupational Education and Technology, Texas Education Agency